



Name _____

Practice: For use after Lesson 2.7, Algebra 2 with Trigonometry

Algebra 2
Unit #7
WS #10**Absolute Value Inequalities**

Solve and graph the solution set.

1. $|2x| < 6$ _____
2. $|x + 1| > 7$ _____
3. $|x - 3| > 5$ _____
4. $|4 - x| > 8$ _____
5. $2|x - 8| \leq 10$ _____
6. $|2x| - 6 \geq 4$ _____
7. $3|2x + 4| - 5 < 10$ _____
8. $|4x - 8| < 0$ _____
9. $|-3x + 1| > 2$ _____
10. $\frac{1}{5}|x + 3| + 2 > 1$ _____
11. $\left|\frac{x-5}{2}\right| + 3 < 5$ _____

Applications

Manufacturing The specifications for machined parts are given with tolerance limits. For example, if a part is to be 4.3 cm thick with a tolerance of 0.01 cm, this means that the actual thickness must be at most 0.01 cm greater than or less than 4.3 cm. If n represents the actual measured thickness of the part in centimeters, then the tolerance limit can be expressed as the absolute value inequality $|n - 4.3| \leq 0.01$.

Express the tolerance limit as an absolute value inequality.

12. The length of a part is to be 7.8 cm with a tolerance of 0.02 cm. _____

MIXED PRACTICE

Solve.

13. $|4x + 3| = 9$ _____
14. $|x - 4| < 2$ _____
15. $2|2x - 1| + 3 > 9$ _____
16. $7x + 13 \leq 10x + 52$ _____